

PROFESSION

Senior Scientists Face Funding Hurdles, Mandatory Retirement

BY JULIA KING

In 1984, biologist Maurice Hilleman—a Lasker award winner, a recipient of the National Medal of Science, and a man who had pioneered more than a dozen vaccines—found himself out of a job. Hilleman, who had worked for 27 years at the West Point, Pa.-based Merck Sharp and Dohme Laboratories, was a senior vice president and director of vaccine research at the pharmaceutical company. The fact that he was one of the firm's most productive scientists and that he didn't want to leave his post didn't matter.

Likewise, biologist Marvin Weinstein, formerly vice president for microbiology and DNA research at Schering-Plough Corp. in Madison, N.J., found himself unemployed nine years ago. Weinstein, who had joined the company in 1956 as a bench scientist and worked his way through the ranks, was a corporate executive as well as a scientist.

The problem? Both Hilleman and Weinstein had reached the age of 65. As executives, they were exempt from age-discrimination laws that prohibit mandatory retirement for

Hilleman: "In many ways, scientists can be compared to musicians. You can still toot a horn when you're 90."



Lederberg: "Essentially, there are no opportunities for most 70-year-old scientists to continue working."



Weinstein: Retirement at age 65 from Schering-Plough Corp., where he had worked for a quarter-century, "was mandatory. I had to leave."



Pauling: "I work just as many hours as I ever did, and I've published more papers in the last 10 to 15 years than when I was younger."

the resources of its older and most experienced scientists. Ongoing research includes numerous university-based studies concerning the relationship between age and scientific research performance. The National Academy of Sciences is currently investigating the ways in which eliminating mandatory retirement for university professors might affect science education. To date, however, no one set of conclusions has been reached or has become widely accepted. In the meantime, many senior scientists maintain that they are being prematurely put out to pasture despite both a desire and the physical and mental wherewithal to continue their work.

40% of researchers awarded NSF funds.

For many scientists, this can mean two decades with no support for being productive. "This is a serious problem," says NIA's Riley.

But McCullough says one cannot assume from these data that senior applicants are consistently declined by NSF. Rather, he says, "what it comes down to is whether an applicant's peers believe him to be on the cutting edge."

All too often, however, it is assumed that anyone over a certain age cannot possibly be on the cutting edge, says Nobelist Linus Pauling, a chemist who has outlived his life expectancy at birth by 40 years. At age 88, Pauling has retired himself as director of the Linus Pauling In-

engineering, and service to humanity. It is also designed, according to NSF, to complement the foundation's Alan T. Waterman Award to a promising young scientist, an award that, by comparison, carries a grant of up to \$500,000 over a three-year period.

"I was rather amused that at exactly the same time I was receiving the Vannevar Bush Award, I was being turned down again for a research grant," Pauling says. "In giving me the award, the chairman of the NSF board reviewed all of the contributions I made to science in the past, and didn't say anything about what I was doing at the present. Meanwhile, I work just as many hours as I ever did, and I've published more papers per year in the

stitute of Science and Medicine in Palo Alto, Calif. He does continue research on the nature of metal alloys, but over the past few years he has been declined an NSF grant for his work four consecutive times.

Last year, Pauling did receive NSF's Vannevar Bush Award, which is conferred periodically on a senior scientist who has made outstanding contributions in his field. The award, which is honorary and carries no financial stipend, is designed to encourage individuals to seek the highest levels of achievement in science,

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Part I of a two-part series, to be continued in the Feb. 5, 1990, issue of The Scientist. In Part II, The Scientist examines opportunities for senior scientists. Also, eminent researchers, including Pauling and 83-year-old computer scientist Admiral Grace Hopper, offer suggestions on how older researchers can remain productive.